

09/11/439

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L14: Entry 1 of 11

File: USPT

Dec 25, 2001

US-PAT-NO: 6333157

DOCUMENT-IDENTIFIER: US 6333157 B1

TITLE: Disassociation of interacting molecules

DATE-ISSUED: December 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller-Jones; David N.	Cambridge			GBX
Bergmann; Karin	West Wratteng			GBX
Watson; Susan L.	Cambridge			GBX

US-CL-CURRENT: 435/6; 435/287.2, 435/91.1, 435/91.2, 436/94, 536/23.1, 536/24.3,
536/24.33

ABSTRACT:

dsDNA or other interacting molecules, e.g. antibody and antigen, are disassociated by applying an electrical voltage to a solution containing said molecules in a buffer favoring said disassociation e.g. CHES, CAPS OR CAPSO.

28 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw	Desc	Image							

KMC

☐ 2. Document ID: US 6280590 B1

L14: Entry 2 of 11

File: USPT

Aug 28, 2001

US-PAT-NO: 6280590

DOCUMENT-IDENTIFIER: US 6280590 B1

TITLE: Channel-less separation of bioparticles on a bioelectronic chip by dielectrophoresis

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cheng; Jing	San Diego	CA		
Sheldon, III; Edward L.	San Diego	CA		
Wu; Lei	San Diego	CA		
O'Connell; James P.	San Diego	CA		

US-CL-CURRENT: 204/463; 204/450, 204/600, 435/173.7, 435/173.9, 435/285.2, 435/287.2, 435/306.1

ABSTRACT:

The present invention comprises devices and methods for performing channel-less separation of cell particles by dielectrophoresis, DC high voltage-pulsed electronic lysis of separated cells, separation of desired components from crude mixtures such as cell lysates, and/or enzymatic reaction of such lysates, all of which can be conducted on a single bioelectronic chip. A preferred embodiment of the present invention comprises a cartridge (10) including a microfabricated silicon chip (12) on a printed circuit board (14) and a flow cell (16) mounted to the chip (12) to form a flow chamber. The cartridge (10) also includes output pins (22) for electronically connecting the cartridge (10) to an electronic controller. The chip (12) includes a plurality of circular microelectrodes (24) which are preferably coated with a protective permeation layer which prevents direct contact between any electrode and a sample introduced into the flow chamber. The permeation layer also helps to reduce cell adhesion at field minima, and enables immobilization of specific antibodies for specific cell capture. Specific cells from various cell mixtures were separated, lysed, and enzymatically digested on the chip.

12 Claims, 25 Drawing figures
Exemplary Claim Number: 8
Number of Drawing Sheets: 15

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

KIMC

☒ 3. Document ID: US 6203683 B1

L14: Entry 3 of 14

File: USPT

Mar 20, 2001

US-PAT-NO: 6203683

DOCUMENT-IDENTIFIER: US 6203683 B1

TITLE: Electrodynamically focused thermal cycling device

DATE-ISSUED: March 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Austin; Robert H.	Princeton	NJ		
Cox; Edward C.	Princeton	NJ		
Chou; Chia-Fu	Princeton	NJ		

US-CL-CURRENT: 204/547; 204/643**ABSTRACT:**

A device for the integrated micromanipulation, amplification, and analysis of polyelectrolytes such as DNA comprises a microchip which contains electrodes for dielectrophoresis powered by an AC signal generator, and a trapping electrode attached to a direct current source that can be heated to specific temperatures. Nucleic acids can be heated and cooled to allow for denaturation, the annealing of complementary primers and enzymatic reactions, as in a thermocycling reaction. After such a reaction

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<u>L15</u>	L14 not cells	0	<u>L15</u>
<u>L14</u>	L13 not l12	11	<u>L14</u>
<u>L13</u>	nucleic with electro\$3 with releas\$3	12	<u>L13</u>
<u>L12</u>	nucleic with electric\$3 with releas\$3	3	<u>L12</u>
<u>L11</u>	L9 with rub\$4	1	<u>L11</u>
<u>L10</u>	L9 with shav\$3	0	<u>L10</u>
<u>L9</u>	L8 with recover\$3	23	<u>L9</u>
<u>L8</u>	nucleic with support	2832	<u>L8</u>
<u>L7</u>	nucleic with support with rub	0	<u>L7</u>
<u>L6</u>	L5 not l4	0	<u>L6</u>
<u>L5</u>	nucleic with support with recover\$3 with electrode	2	<u>L5</u>
<u>L4</u>	L2 not mediated with electron	7	<u>L4</u>
<u>L3</u>	L2 with potential	0	<u>L3</u>
<u>L2</u>	nucleic with support with electrode	20	<u>L2</u>
<u>L1</u>	nucleic with support with electric\$3 with potential	0	<u>L1</u>

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nucleic with electrode with releas\$	2

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L6

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DATE: Thursday, March 14, 2002 [Printable Copy](#) [Create Case](#)
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*DB=DWPI; PLUR=YES; OP=OR*L6 nucleic with electrode with releas\$2 L6L5 nucleic with releas\$3 with shav\$30 L5L4 nucleic with releas\$3 with rub\$40 L4*DB=JPAB,EPAB; PLUR=YES; OP=OR*L3 nucleic with releas\$3 with shav\$30 L3L2 nucleic with releas\$3 with rub\$40 L2L1 nucleic with electro\$3 with releas\$33 L1

END OF SEARCH HISTORY

has been completed on the trapping electrode, the dielectrophoretic field can be switched to a direct current to release the product and direct it through a matrix for fractionation and/or analysis. The device includes data analysis equipment for the control of these operations, and imaging equipment for the analysis of the products. The invention permits the efficient handling of minute samples in large numbers, since reactions occur while sample material is positioned on an electrode in a microfluidic channel. Because the positioning, reactions, and release into a fractioning matrix are all integrated from the focusing wire, the need to transfer samples into different tubes is eliminated, thus increasing the efficiency and decreasing the possibility of damage to the samples.

28 Claims, 10 Drawing figures
Exemplary Claim Number: 16
Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

☐ 4. Document ID: US 6156506 A

L14: Entry 4 of 11

File: USPT

Dec 5, 2000

US-PAT-NO: 6156506
DOCUMENT-IDENTIFIER: US 6156506 A

TITLE: Method for detecting a target substance in a sample, utilizing pyrylium compound
DATE-ISSUED: December 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamamoto; Nobuko	Isehara			JPX
Okamoto; Tadashi	Yokohama			JPX

US-CL-CURRENT: 435/6

ABSTRACT:

A method for detecting a target substance in a sample comprises the steps of providing at least two reagents which can form a reaction system for causing changes as the result of an interaction therebetween the interaction being caused only when the target substance is present in the sample, reacting the reagents with the target substance, and measuring the resulting changes based on the interaction, wherein at least one of the reagents forming the reaction system is selected from specific pyrylium compounds.

67 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

☐ 5. Document ID: US 6107024 A

L14: Entry 5 of 11

File: USPT

Aug 22, 2000

US-PAT-NO: 6107024
DOCUMENT-IDENTIFIER: US 6107024 A

TITLE: Method and compositions providing enhanced chemiluminescence from 1,2-dioxetanes

DATE-ISSUED: August 22, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaap; Arthur Paul	Grosse Pointe Park	MI		

US-CL-CURRENT: 435/6; 435/5, 435/7.1, 435/7.2, 436/501

ABSTRACT:

A method and compositions including a 1,2-dioxetane and a fluorescent compound is described. In particular, enzymatic triggering of a triggerable 1,2-dioxetane admixed with a surfactant and the fluorescent compound attached to a hydrocarbon to provide a co-surfactant in a micelle or other structure providing close association of these molecules is described. The method and compositions are useful in immunoassays and in DNA probes used for various purposes.

22 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWIC

☒ 6. Document ID: US 6071394 A

L14: Entry 6 of 11

File: USPT

Jun 6, 2000

US-PAT-NO: 6071394

DOCUMENT-IDENTIFIER: US 6071394 A

TITLE: Channel-less separation of bioparticles on a bioelectronic chip by dielectrophoresis

DATE-ISSUED: June 6, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cheng; Jing	San Diego	CA		
Sheldon, III; Edward L.	San Diego	CA		
Wu; Lei	San Diego	CA		
O'Connell; James P.	San Diego	CA		

US-CL-CURRENT: 204/547; 204/643, 435/173.7, 435/173.9

ABSTRACT:

The present invention comprises devices and methods for performing channel-less separation of cell particles by dielectrophoresis, DC high voltage-pulsed electronic lysis of separated cells, separation of desired components from crude mixtures such as cell lysates, and/or enzymatic reaction of such lysates, all of which can be conducted on a single bioelectronic chip. A preferred embodiment of the present invention comprises a cartridge (10) including a microfabricated silicon chip (12) on a printed circuit board (14) and a flow cell (16) mounted to the chip (12) to form a flow chamber. The cartridge (10) also includes output pins (22) for electronically connecting the cartridge (10) to an electronic controller. The chip (12) includes a plurality of circular microelectrodes (24) which are preferably coated with a protective permeation layer which prevents direct contact between any electrode and a sample introduced into the flow chamber. The permeation layer also helps to reduce cell

adhesion at field minima, and enables immobilization of specific antibodies for specific cell capture. Specific cells from various cell mixtures were separated, lysed, and enzymatically digested on the chip.

25 Claims, 25 Drawing figures
Exemplary Claim Number: 20
Number of Drawing Sheets: 15

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 7. Document ID: US 5939256 A

L14: Entry 7 of 11

File: USPT

Aug 17, 1999

US-PAT-NO: 5939256
DOCUMENT-IDENTIFIER: US 5939256 A

TITLE: Detection of nucleic acid hybrid variation which interacts with double helix or with second reagent through double helix by charge transfer and probe for hybridizing with target nucleic acid

DATE-ISSUED: August 17, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamamoto; Nobuko	Isehara			JPX
Okamoto; Tadashi	Yokohama			JPX
Tomida; Yoshinori	Atsugi			JPX
Kawaguchi; Masahiro	Atsugi			JPX
Makino; Keisuke	Kyoto			JPX
Murakami; Akira	Kyoto			JPX

US-CL-CURRENT: 435/6; 436/501

ABSTRACT:

A method for detecting a nucleic acid hybrid comprises steps of adding a nucleic acid probe into a sample solution containing a targeted nucleic acid, and detecting a double helical structure of a hybrid formed between the probe and the targeted nucleic acid, wherein the step for detecting the double helical structure comprises incorporating, into the sample solution, two or more kinds of reagents which are capable of causing a detectable change by interaction therebetween through the double helical structure and measuring the change caused by the interaction of the reagents; and at least one of the two or more kinds of reagents is joined to the probe.

47 Claims, 8 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 8. Document ID: US 5891626 A

L14: Entry 8 of 11

File: USPT

Apr 6, 1999

US-PAT-NO: 5891626

DOCUMENT-IDENTIFIER: US 5891626 A

TITLE: Method providing enhanced chemiluminescence from 1,2-dioxetanes

DATE-ISSUED: April 6, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaap; Arthur Paul	Grosse Pointe Park	MI		

US-CL-CURRENT: 435/6; 435/5, 435/7.1, 435/7.2, 436/501

ABSTRACT:

A method and compositions including a 1,2-dioxetane and a fluorescent compound is described. In particular, enzymatic triggering of a triggerable 1,2-dioxetane admixed with a surfactant and the fluorescent compound attached to a hydrocarbon to provide a co-surfactant in a micelle or other structure providing close association of these molecules is described. The method and compositions are useful in immunoassays and in DNA probes used for various purposes.

18 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 9. Document ID: US 5874046 A

L14: Entry 9 of 11

File: USPT

Feb 23, 1999

US-PAT-NO: 5874046

DOCUMENT-IDENTIFIER: US 5874046 A

TITLE: Biological warfare agent sensor system employing ruthenium-terminated oligonucleotides complementary to target live agent DNA sequences

DATE-ISSUED: February 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Megerle; Clifford A.	Thousand Oaks	CA		

US-CL-CURRENT: 422/68.1; 422/50, 422/62, 422/63, 422/67, 422/69, 422/82.01, 422/82.02, 435/283.1, 435/285.1, 435/285.2, 435/287.1, 435/287.2, 435/287.3, 435/289.1, 435/29, 435/30, 435/40.5, 435/6, 436/501

ABSTRACT:

A sensor system and method are provided that are capable of the real-time detection of target live microorganisms, such as biological warfare agents. The sensor system includes a highly-sensitive, highly-selective sensor cell that comprises a single-stranded oligonucleic acid sequence that is complementary to a portion of the DNA of a target live microorganism, the oligonucleic acid having been modified with the covalent attachment of electron donor and acceptor moieties. In the presence of the targeted microorganism, hybridization occurs between the modified oligonucleic acid and the microorganism's DNA, such that the electron conductance between the electron transfer moieties greatly increases, thereby providing a means of detecting the presence of the target live microorganism. Aside from the sensor cell, the sensor system also includes an inlet port in the sensor cell wall by which to introduce a sample from the fluid environment into the sensor cell; a cell wall disrupter to

release the nucleic acid of the fluid sample into the sensor cell; an electron transfer rate measuring system to gauge the electron transfer rate between the electron transfer moieties of the modified oligonucleic acid; a power source; a microcontroller to analyze the measured electron transfer rate for evidence of hybridization; and a communication system for relaying information regarding the presence or absence of the target live microorganism to the user of the sensor system. It is contemplated that the sensor system, exclusive of a battery and pump pack, will be only slightly larger than a pack of cigarettes and light enough to be comfortably worn and carried by personnel.

13 Claims, 6 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KWMC

☐ 10. Document ID: US 5705346 A

L14: Entry 10 of 11

File: USPT

Jan 6, 1998

US-PAT-NO: 5705346
DOCUMENT-IDENTIFIER: US 5705346 A

TITLE: Method for detecting a target nucleic acid by using an interaction of two kinds of reagents

DATE-ISSUED: January 6, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Okamoto; Tadashi	Yokohama			JPX
Tomida; Yoshinori	Atsugi			JPX
Yamamoto; Nobuko	Isehara			JPX
Kawaguchi; Masahiro	Atsugi			JPX
Makino; Keisuke	Kyoto			JPX
Murakami; Akira	Kyoto			JPX

US-CL-CURRENT: 435/6; 435/810, 436/501, 536/23.1, 536/24.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33

ABSTRACT:

A method for detecting a target nucleic acid comprises the steps of reacting a sample with a probe in the presence of two or more kinds of reagents capable of being made an irreversible change capable of being detected and accumulating by an interaction through a double helix structure under a condition enabling the replication of the formation and dissociation of a hybrid composed of the target nucleic acid in the sample and the probe, accumulating the irreversible change caused by the interaction of the reagents, and then detecting the accumulated change.

30 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KWMC

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<u>L6</u>	L5 not l4	0	<u>L6</u>
<u>L5</u>	nucleic with support with recover\$3 with electrode	2	<u>L5</u>
<u>L4</u>	L2 not mediated with electron	7	<u>L4</u>
<u>L3</u>	L2 with potential	0	<u>L3</u>
<u>L2</u>	nucleic with support with electrode	20	<u>L2</u>
<u>L1</u>	nucleic with support with electric\$3 with potential	0	<u>L1</u>

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<u>L11</u>	L9 with rub\$4	1	<u>L11</u>
<u>L10</u>	L9 with shav\$3	0	<u>L10</u>
<u>L9</u>	L8 with recover\$3	23	<u>L9</u>
<u>L8</u>	nucleic with support	2832	<u>L8</u>
<u>L7</u>	nucleic with support with rub	0	<u>L7</u>
<u>L6</u>	L5 not l4	0	<u>L6</u>
<u>L5</u>	nucleic with support with recover\$3 with electrode	2	<u>L5</u>
<u>L4</u>	L2 not mediated with electron	7	<u>L4</u>
<u>L3</u>	L2 with potential	0	<u>L3</u>
<u>L2</u>	nucleic with support with electrode	20	<u>L2</u>
<u>L1</u>	nucleic with support with electric\$3 with potential	0	<u>L1</u>

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L4: Entry 1 of 7

File: USPT

Nov 20, 2001

US-PAT-NO: 6319670

DOCUMENT-IDENTIFIER: US 6319670 B1

TITLE: Methods and apparatus for improved luminescence assays using microparticles

DATE-ISSUED: November 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sigal; George B.	Rockville	MD		
Wohlstadter; Jacob N.	Rockville	MD		
Gudibande; Satyanarayana	Gaithersburg	MD		
Martin; Mark T.	Rockville	MD		
Wilbur; James L.	Germantown	MD		

US-CL-CURRENT: 435/6; 436/534

ABSTRACT:

The present invention relates to methods, reagents and compositions, for conducting electrochemiluminescence binding assays which improve one or more characteristics of the assay or the instruments used to conduct the assay. The method is achieved using microparticles that include electrically conductive material. The electrically conductive material has one or more copies of an assay ligand immobilized on its outer surface and a plurality of electrochemiluminescent moieties immobilized on its outer surface. The assay ligand may be linked to the electrochemiluminescent moiety.

44 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
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☒ 2. Document ID: US 6203758 B1

L4: Entry 2 of 7

File: USPT

Mar 20, 2001

US-PAT-NO: 6203758

DOCUMENT-IDENTIFIER: US 6203758 B1

TITLE: Micro-circuit system with array of functionalized micro-electrodes

DATE-ISSUED: March 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marks; Robert	Beersheva			ILX
Lellouche; Jean-Paul	Ashdod			ILX

US-CL-CURRENT: 422/68.1; 204/403.01, 204/418, 204/419, 204/434, 205/687, 250/461.1,
250/461.2, 422/101, 422/82.01, 422/82.02, 422/82.03, 427/2.11, 427/2.13, 427/455,
427/470, 435/16, 435/6, 435/7.1, 435/970, 435/973, 436/518, 436/525, 549/223

ABSTRACT:

A micro-circuit for performing analyses of multimolecular interactions and for performing molecular syntheses, comprising: (a) a support; (b) at least one micro-electrode attached to the support, the micro-electrode being selectively electronically activated and the micro-electrode having a protective layer which is removable; (c) a binding entity for attachment to the at least one micro-electrode, the binding entity being capable of attachment to at least one micro-electrode when the protective layer has been removed; and (d) a power source being operatively connected to at least one micro-electrode for electronically activating at least one micro-electrode. The micro-circuit of the present invention also includes embodiments featuring a micro-circuit reader for detecting the interaction of the binding entity to a complementary probe, as well as methods for making and using the micro-circuit of the present invention.

21 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 19

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC
Draw Desc	Image										

☒ 3. Document ID: US 6197949 B1

L4: Entry 3 of 7

File: USPT

Mar 6, 2001

US-PAT-NO: 6197949

DOCUMENT-IDENTIFIER: US 6197949 B1

TITLE: Electronically conductive polymer/nucleotide copolymer. preparation method therefor and use thereof

DATE-ISSUED: March 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Teoule; Robert	Grenoble			FRX
Roget; Andre	Saint Egreve			FRX
Livache; Thierry	Grenoble			FRX
Barthet; Christelle	Grenoble			FRX
Bidan; Gerard	Grenoble			FRX

US-CL-CURRENT: 536/25.3; 204/165, 205/158, 536/22.1

ABSTRACT:

A copolymer of general formula (I), wherein unit A is a monomer of an electronically conductive polymer, unit B is a nucleotide, an oligonucleotide or an analogue thereof, x, y, z are integers of 1 or higher or y is 0, and l is a covalent bond, or a spacer arm. Methods for preparing polymer (I) and its use, in particular for nucleic acid synthesis, sequencing and hybridization, are also disclosed.

25 Claims, 15 Drawing figures

Exemplary Claim Number: 1
Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☒ 4. Document ID: US 5945286 A

L4: Entry 4 of 7

File: USPT

Aug 31, 1999

US-PAT-NO: 5945286
DOCUMENT-IDENTIFIER: US 5945286 A

TITLE: Electrochemical-based molecular detection apparatus and method

DATE-ISSUED: August 31, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Krihak; Michael	Phoenix	AZ		
Shieh; Chan-Long	Paradise Valley	AZ		

US-CL-CURRENT: 435/6, 422/50, 422/55, 422/56, 422/57, 422/68.1, 422/82.01, 435/283.1,
435/285.2, 435/287.1, 435/287.2, 435/287.7, 435/287.9

ABSTRACT:

A molecular detection apparatus including an electrode, a peptide nucleic acid probe covalently bonded to the electrode and a protective layer covering portions of the electrode not having attached probes which prevents oxidation/reduction of intercalator molecules.

12 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 5. Document ID: US 5837859 A

L4: Entry 5 of 7

File: USPT

Nov 17, 1998

US-PAT-NO: 5837859
DOCUMENT-IDENTIFIER: US 5837859 A

TITLE: Preparation of a electronically conductive polymer/nucleotide copolymer

DATE-ISSUED: November 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Teoule; Robert	Grenoble			FRX
Roget; Andre	Saint Egreve			FRX
Livache; Thierry	Grenoble			FRX
Barthet; Christelle	Grenoble			FRX
Bidan; Gerard	Grenoble			FRX

US-CL-CURRENT: 536/25.3; 204/165, 205/158

ABSTRACT:

A copolymer of general formula (I), ##STR1## wherein unit A is a monomer of an electronically conductive polymer, unit B is a nucleotide, an oligonucleotide or an analogue thereof, x, y, z are integers of 1 or higher or y is 0, and l is a covalent bond, or a spacer arm. Methods for preparing said polymer and its use, in particular for nucleic acid synthesis, sequencing and hybridization, are also disclosed.

9 Claims, 18 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 6. Document ID: US 4964961 A

L4: Entry 6 of 7

File: USPT

Oct 23, 1990

US-PAT-NO: 4964961

DOCUMENT-IDENTIFIER: US 4964961 A

TITLE: Elution method and device

DATE-ISSUED: October 23, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brautigam; Kathe L.	St. Petersburg	FL		
Gorman, Jr.; William W.	Treasure Island	FL		

US-CL-CURRENT: 204/465; 204/462, 204/613, 204/615

ABSTRACT:

The present invention is directed to an apparatus for electro elution of components separated by preparative electrophoresis on a gel comprising a tapered tube divided by a porous disc into an upper section which is open at the top of the tapered tube and a lower section which is closable by a removable cap. The apparatus also contains a dialysis membrane of substantially the same diameter as the removable cap and affixed to the removable cap such that the dialysis membrane is sealed against the end of the tapered tube when the removable cap encloses the lower section of the tapered tube. Following electro elution, the open upper section of the tapered tube can be sealed and the desired substance is withdrawn through the cap and dialysis membrane which encloses the lower end of the tube. An auxiliary funnel can be affixed to the open upper end of the tube to increase the capacity of the system.

17 Claims, 3 Drawing figures
Exemplary Claim Number: 1,7
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 7. Document ID: US 4545888 A

L4: Entry 7 of 7

File: USPT

Oct 8, 1985

US-PAT-NO: 4545888

DOCUMENT-IDENTIFIER: US 4545888 A

TITLE: Apparatus for electrophoretic recovery of nucleic acids and other substances

DATE-ISSUED: October 8, 1985

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Walsh; J. William	Baltimore	MD	21211	

US-CL-CURRENT: 204/613; 204/614

ABSTRACT:

The invention is an improved electrophoresis device for the recovery of nucleic acids and other substances. The apparatus and method of this invention is for the purpose of recovering large charged molecules in a pure state after they have been separated from a mixture by gel electrophoresis; the charged molecules from gels which has high quantitative recovery without contamination by an apparatus and method which is rapid and convenient to use. The apparatus consists of a plurality of transfer chambers suitably supported in a vessel for containing an aqueous buffer solution, a plurality of filter discs for support of a layer of DEAE cellulose resin in the bottom of the transfer chambers, a plurality of negative electrodes (one in each of the upper portion of each of the transfer chambers), a positive electrode for placement in the buffer which will surround the plurality of transfer chambers, and a power supply.

10 Claims, 10 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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L12: Entry 1 of 3

File: USPT

Jan 1, 2002

US-PAT-NO: 6335161

DOCUMENT-IDENTIFIER: US 6335161 B1

TITLE: Release of intracellular material and the production therefrom of single stranded nucleic acid

DATE-ISSUED: January 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Martin; Sophie E.V.	Cambridge			GBX
Bergmann; Karin	Cambridge			GBX
Pollard-Knight; Denise V.	London			GBX

US-CL-CURRENT: 435/6; 435/91.2, 436/94

ABSTRACT:

Intracellular material is released from bacterial, yeast, plant, animal, insect or human cells by the application of a low voltage such as 1 to 10 V to a suspension containing the cells. The conditions may be selected such that DNA released from the cells is electrochemically denatured so as to be available for use in an amplification procedure.

6 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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[KWWC](#)☐ 2. Document ID: US 5902746 A

L12: Entry 2 of 3

File: USPT

May 11, 1999

US-PAT-NO: 5902746

DOCUMENT-IDENTIFIER: US 5902746 A

TITLE: Assembly for treating a sample in a liquid medium, in particular a biological material

DATE-ISSUED: May 11, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Colin; Bruno	Marcy l'Etoile			FRX
Mandrand; Bernard	Villeurbanne			FRX
Imbaud; Pierre	Pommiers			FRX

US-CL-CURRENT: 435/306.1; 422/101, 422/68.1, 422/70, 435/286.5, 435/287.2, 435/288.6

ABSTRACT:

An assembly for treating a sample in a liquid medium, in particular a biological material, includes an essentially static permanently active module, closed off by a chamber from the outside. The assembly includes a disposable outer container holding the sample to be treated, for example an inoculum of a cell culture. The disposable outer container can be connected to the main outlet of a treatment circuit. Another disposable outer container is provided for analyzing the nucleic fraction obtained in the treatment circuit. This container can be connected to the main outlet of the treatment circuit and comprises various reagents and means for analyzing the nucleic fraction. Constituents of the assembly can act as a heat source when connected to an electrical current.

12 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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☒ 3. Document ID: US 5440025 A

L12: Entry 3 of 3

File: USPT

Aug 8, 1995

US-PAT-NO: 5440025

DOCUMENT-IDENTIFIER: US 5440025 A

TITLE: Process for separating nucleic acid polymers

DATE-ISSUED: August 8, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marx; Kenneth A.	Francetown	NH		
Tripathy; Sukant K.	Acton	MA		

US-CL-CURRENT: 536/25.4; 435/287.2

ABSTRACT:

A method is disclosed for separating a nucleic acid polymer without substantially denaturing the nucleic acid polymer. The method includes contacting a liquid medium, in which the nucleic acid polymer is disposed, with an electrically conductive polymer substrate. The substrate has an electrical charge which, when the substrate is contacted with said liquid medium, causes at least a portion of the nucleic acid polymer in the liquid medium to bind to said substrate without substantially denaturing the nucleic acid polymer. The substrate is then separated from the liquid medium, whereby the bound nucleic acid polymer is removed from the liquid medium, thereby isolating the bound nucleic acid polymer from the liquid medium without substantially denaturing the nucleic acid polymer.

13 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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